UNIVERSITY OF TORONTO, DEPARTMENT OF STATISTICAL SCIENCES

# STATISTICAL CONSULTATION, COMMUNICATION, AND COLLABORATION

#### **Course** information

2021–22 FULL YEAR, 1 CREDIT LEC0101 BOLTON | LEC0102 MOON

The purpose of the course is to develop skills in the collaborative practice of statistics. This will be done through class discussion, readings, case studies, and a collaborative project. Course activities develop skills in statistical problem solving and oral and written communication and engage you in issues related to appropriate and ethical statistical practice.

## Teaching team

#### LEC0101

Instructor: Liza Bolton Please call me: Liza



How do you pronounce that?

- Liza: <u>a video...</u>
- Bolton: Like the English words "bowl" + "tonne"

#### Pronouns: <u>she/her</u>

Email: <u>liza.bolton@utoronto.ca</u> Office hours: TBA

Graduate student project mentors

Steven Campbell, Anthony Coache, Morris Greenberg, Emma Holmes, Marija Pejcinovska, Yunyi Shen, George Stefan

Writing development teaching assistant Becca Christensen

## http:// All materials will be posted on Quercus (<u>https://q.utoronto.ca</u>)

Seminar meetings: Thursdays 10 a.m.-noon ET Project meetings: (most) Tuesdays 10 a.m.-noon ET

#### Delivery

- Thursday seminar meetings will be held fully **online**.
- Tuesday project meetings will have online and in-person options (subject to availability and ongoing health guidance).



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THIS COURSE IS DISCUSSION-BASED— SYNCHRONOUS ATTENDANCE IS REQUIRED. MEETINGS ARE NOT RECORDED.

#### LEC0102

**Instructor:** Michael Moon **Please call me:** Michael How do you pronounce that?

- Michael: MY-kul (audio)
- Moon: Like the English word "moon"!

Pronouns: <u>he/him</u> Email: <u>moon@utstat.toronto.edu</u> Office hours: TBA



#### Learning objectives

By the end of the course, you should be able to:

- 1. **Connect** general scientific questions from researchers from other disciplines to statistics through distilling **essential features** of the problem, **asking good questions** and restating the collaborator's answer to check understanding.
- 2. **Evaluate** and **critique data analyses** and solutions to statistical problems—both your own and those of others. E.g., recognize limitations, biases.
- 3. **Conduct and communicate about all stages of a statistical analysis**: understand the **background**, formulate **research questions** in quantifiable terms, explore and wrangle data, choose appropriate methods and evaluate their relative merits and communicate results.
- 4. **Communicate** statistical ideas and findings to a range of audiences using **oral**, **written**, **and visual methods**.
- 5. Understand and apply **ethical** considerations to your professional practice.
- 6. Produce **reproducible** and **well-commented** R Markdown documentation of analyses.
- 7. Reflect effectively on your own learning and professional development.
- 8. **Collaborate effectively** in a team to evaluate your methodology and provide insights into research questions.

Course mantra

It's OK not to know. Expressing ignorance is encouraged. It's *not* OK to not have a willingness to learn.

#### How to succeed in this course

- Work on your project every week
  - Set yourself mini-deadlines, especially during analysis and writing
- Update your project log 'real-time' (don't leave it till the last minute)
- Do the readings and the reading check-ins
- Be prepared and on time for all seminar and project meetings (see the questions for seminar meetings)
- Ask good questions
- Do all the assigned work on time
- Demonstrate that you are trying

#### How will your success be measured?

- Work on your **collaborative project** is the main assessment area for this course.
- Active **participation** is worth more than you may have experienced in past statistics courses.
- There are four additional **communication tasks** that will help you develop your reporting, reflection, writing and presentation skills. 5% each

60% Collaborative project (see the breakdown below)		20% Attendance, participation, and preparation		Mini report	Mid-year reflect	Career reflection	Presentation	
	W	Weight		Date(s)				
Collaborative project	60%							
Project presentation	10 points		Dec	Dec 2, Jan 27, Mar 31				
Project logs	10 points		Ongoing					
EDA (draft, feedback, final)	15 points		Nov	lov 15, Nov 19, Nov 24				
Statistical analysis	20 points		Feb 7					
Draft report #1 (completion, feedback on peers')	5 points		Mar 9, Mar 14					
Draft report #2	10 points		Mar 18					
Final report	30 points		Apr 8					
Attendance, participation, and preparation (as demonstrated through synchronous class discussions, reading and workshop check-in activities, and project meetings)	2	20%	Multiple/ongoi		ng			
<b>Mini report</b> (submission, peer feedback, and reflection)	5%		Oct	Oct 6, Oct 13, Oct 20				
Mid-year reflection	5%			Dec 8				
Career reflection	5%			Mar 2				
Presentation: Explain like I'm a	5%		Nov	Nov 25, Jan 20, Mar 10				

#### Collaborative project

Much of the course will be structured around a major collaborative project. Students will be divided into groups of 2-4 students and assigned a graduate student mentor (a PhD student in statistics) to guide and support their work on this project. While most project work will be submitted and assessed individually (see course evaluation breakdown section), active participation in project breakout meetings is expected.

#### Readings and references

Required readings will be posted on the course page on Quercus.

Anytime you need a reference on a statistics topic (software or methodology), start by seeing what you can find on your own, then ask your graduate student mentor or your instructor.

## Computing

We will be using R to conduct analyses in this course. If you have a local installation of R you are welcome to continue using that, but, for this course, you do not need to have R and RStudio installed. If you are having any trouble with your local installation, R and RStudio are also available to you through the cloud-hosted <u>U of T JupyterHub</u>. This gives you access to RStudio in your browser through your U of T login on any internet-connected device. It means you don't have to fight package installations and we can instead focus on the good stuff.

#### Communication

Please email your instructor if you are unable to attend a class meeting because of illness or if it is necessary to make an appointment outside of office hours.

The instructor(s) may contact the entire class by email, at the email address linked to your student account; please make sure that you regularly read the email that goes to that account.

Your project mentor will provide you with information on how to best ask questions about the project between meetings and how to contact them. If you are unable to attend a project meeting because of illness please let your project mentor know in advance.



#### Accessibility

The University of Toronto is committed to accessibility. If you require accommodations for a disability or have any accessibility concerns about the course, the classroom, or course materials, please contact Accessibility Services as soon as possible: email accessibility.services@utoronto.ca or visit the website at http://accessibility.utoronto.ca.



If you have an accommodation letter from your accessibility advisor that is relevant to this course, please do the following:

- Email your letter to the instructor for your section with "Accommodation letter" as part of the email subject, CC your advisor and let us know anything else you wish us to know/any questions you have. Please do this as soon as possible after you enrol in the course/receive this syllabus.
- Confirm any accommodations for each specific assessment at least 1 week before the assessment / due date.

## Missed/late submission policies

No late work will be accepted without prior approval from the instructor. If you have concerns about meeting a deadline (e.g., if you are ill), please contact your instructor as early as possible to discuss alternative arrangements. When possible, alert your instructor to potential issues as early as you can. This will allow us to work together with you to find a suitable solution.

## Marking concerns

Any request to have an assessment remarked must be emailed to your course instructor (not to your TA) within one week of the grades being posted; your request will be reviewed by the course instructor (in consultation with your graduate student mentor, as appropriate). Your request must include:

- your name and student number,
- a detailed written justification for your request; it is not enough to simply say that you believe your work deserves higher credit.

Please note that we reserve the right to review the grading of your entire submission when you re-submit an assessment for reconsideration (i.e., your grade could go down).

#### Class seminar meetings

Class seminar meetings are typically on Thursdays from 10:10 a.m.–noon ET. You should attend the seminar for your assigned section only; all of these meetings will be held online. Attendance at all class seminars is mandatory, as there is no substitution for participating in the discussions that will take place.

Seminars are different from lectures. Sometimes, part of the meeting time will be dedicated to a formal lecture with slides highlighting key concepts. Most weeks, there will be assigned reading or work which must be done in preparation for the seminar meeting, and you are responsible for coming to class ready to identify aspects of the readings which need to be discussed further and for raising questions about points that are unclear. During discussions, you should be listening for three things to help you shape the group discussion that follows:

- Relevant questions/concepts/issues which require further discussion.
- One question/concept/issue which you don't yet fully understand.
- One question/concept/issue which you are interested in and would like talk about more.

#### Project breakout meetings

Project breakout meetings will be held during Tuesdays 10:10 a.m.-noon ET on the dates indicated on the course schedule. Your graduate student mentor will be present at these meetings to guide you and provide advice, but you are responsible for coming to these meetings ready to speak about the work you've done on your project over the past week and raise questions or challenges you've encountered and to come up with strategies to solving these as a group. The activities in these breakout sessions will vary, but may include the following:

- Introduction to your collaborative project
- One-on-one chats with your graduate student mentor to discuss your progress on your project
- Group discussion to brainstorm/discuss strategies for analysis, compose questions for the research collaborator, etc.
- Check-in meetings with research collaborator

Note: you are expected to work on your project every week, whether you have a scheduled project breakout meeting or not.

## Academic integrity

Academic integrity is fundamental to learning and scholarship at the University of Toronto. Participating honestly, respectfully, responsibly, and fairly in this academic community ensures that the University of Toronto degree that you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

#### Plagiarism

In this course, probably more than your previous statistics courses, you may be at risk of plagiarising if you do not understand the rules and your responsibilities. You must not present the work of others as your own. This includes, but is certainly not limited to, copying text and including it in your writing without a citation and quotation marks. There are many resources to help you learn more:

https://www.academicintegrity.utoronto.ca/smart-strategies/

#### Minimal technical requirements

All students should consult the <u>minimum technical requirements</u> for participation in online learning. If you are facing financial barriers to obtaining the required technology, please contact your <u>College Registrar's Office</u> to obtain information regarding your potential eligibility for a need-based bursary. If you anticipate having difficulty connecting to University websites (e.g., Quercus), please submit your question here: https://www.utoronto.ca/covid19-contact.

## Intellectual property statement

Course material that has been created by your instructor (i.e., lecture slides, term test questions/solutions, and any other course material and resources made available to you on Quercus) is the intellectual property of your instructors and is made available to you for your personal use in this course. Sharing, posting, selling or using this material outside of your personal use in this course is not permitted under any circumstances and is considered an infringement of intellectual property rights. If you would like to record any course activities in this course, you MUST ask permission from your instructor in advance. According to intellectual property laws, not asking permission constitutes stealing.

